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EXAMINER

MANOHARAN, MUTHUSWAMY GANAPATHY

ART UNIT

PAPER NUMBER

2617

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/539,704

Applicant(s)

VAISANEN ET AL.

Examiner

Muthuswamy G. Manoharan

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-63 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3,5,7,8,10,13-15,17,19,20,22,32-34,37,39-40,44,45,46,49, 50,53,56 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moreton et al. (hereinafter Moreton) (US 2004/00131128) in view of Cervello et al. (hereinafter Cervello) (US 2002/0060995).

Regarding claim 1, Moreton teaches a method of deciding on performing a communication connection changeover of a subscriber terminal (T1) in a wireless communication network comprising at least one access node (AP1, AP2, AP3), wherein said subscriber terminal is able to communicate with an access node in said wireless communication network (Figure 1), said method comprising the steps of:

detecting communication information from said at least one access node, said communication information comprising frequency band information indicating at least one frequency band where said at least one access node is capable to communicate (Abstract, lines 3-7),

transmitting said communication information from said at least one access node to said subscriber terminal by signaling (Paragraphs [0089-0090].

Moreton did not teach specifically, a method of processing the transmitted communication information and determining based on the communication information a communication connection capability of at least part of the at least one access node on the basis of the frequency band information; and using the processing result for a decision on a communication connection changeover of the subscriber terminal.

However, Cervello teaches in an analogous art, a method of processing the transmitted communication information and determining based on the communication information a communication connection capability of at least part of the at least one access node on the basis of the frequency band information; and using the processing result for a decision on a communication connection changeover of the subscriber terminal (Paragraph [0009], lines 6-21).

Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the a method of processing the transmitted communication information and determining based on the communication information a communication connection capability of at least part of the at least one access node on the basis of the frequency band information; and using the processing result for a decision on a communication connection changeover of the subscriber terminal. This modification improves communication capability of the system.

Regarding claim 2, Moreton further teaches a method according to claim 1, wherein said wireless communication network is a WLAN, preferably based on an IEEE 802.11 standard (Paragraph [0003], lines 1-2).

Regarding claim 3, Moreton further teaches a method according to claim 2, wherein said at least one frequency band comprise a frequency band of 2.4 GHz and one or more frequency bands between 5 and 6 GHz (Paragraph [0053], lines 4-7; Paragraph [0018], Paragraph [0038]).

Regarding claim 5, Moreton further teaches a method according to claim 1, wherein said communication information further comprises a traffic load indicator related to the at least one frequency band of at least part of the at least one access node (Paragraph [0090], line 2).

Regarding claim 7, Moreton further teaches a method according to claim 1, wherein said information in said communication information comprise a frequency channel indicator for indicating the frequency channel used by at least part of the at least one access node at the respective frequency band (Paragraph [0029]).

Regarding claim 8, Moreton in view of Cervello teaches all the particulars of the claim 1. Moreton did not teach specifically the method according to claim 1, wherein said processing step further comprises steps of detecting a signal strength indicator on a predetermined frequency band; and comparing the detected signal strength indicator with a predefined threshold value, wherein the result of the comparison indicates an estimation of the connection capability of an access node on another frequency band. However, Cervello teaches in an analogous art, wherein said processing step further comprises steps of detecting a signal strength indicator on a predetermined frequency band; and comparing the detected signal strength indicator with a predefined threshold value, wherein the result of the comparison indicates an estimation of the connection

capability of an access node on another frequency band (Paragraph [0009], lines 6-21). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the, wherein said processing step further comprises steps of detecting a signal strength indicator on a predetermined frequency band; and comparing the detected signal strength indicator with a predefined threshold value, wherein the result of the comparison indicates an estimation of the connection capability of an access node on another frequency band. This modification improves the decision making process and improves signal quality.

Regarding claim 10, Moreton further teaches the method according to claim 1, wherein a result of the decision on a communication connection changeover of the subscriber terminal is a change of the communication connection from the present frequency band to another frequency band which is common to the subscriber terminal and the access node associated with the subscriber terminal (Paragraph [103-104]).

Claims 4,6 18,52 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moreton et al. (hereinafter Moreton) (US 2004/00131128) in view of Cervello et al. (hereinafter Cervello) (US 2002/0060995) and further in view of 3GPP TS 25.331, v3.12.0 (2002-09) (hereinafter 3GPP).

Regarding claim 4, Moreton in view of Cervello teaches all the particulars of the claim except wherein, said communication information further comprises a multiple band indicator related to at least part of the at least one access node. However, 3GPP

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teaches in an analogous art, wherein said communication information further comprises a multiple band indicator related to at least part of the at least one access node (3GPP TS 25.331, section 8.1.16.3). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the method said communication information further comprises a multiple band indicator related to at least part of the at least one access node. This modification helps in completing the handover process quickly.

Regarding claim 6, Moreton in view of Cervello teaches all the particulars of the claim except wherein, said communication information further comprises a frequency band coverage indicator related to frequency bands of neighboring access nodes of the transmitting access node in the wireless communication network. However, 3GPP teaches in an analogous art, wherein said communication information further comprises a frequency band coverage indicator related to frequency bands of neighboring access nodes of the transmitting access node in the wireless communication network (3GPP TS 25.331, section 8.1.16.3). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the method, wherein said communication information further comprises a frequency band coverage indicator related to frequency bands of neighboring access nodes of the transmitting access node in the wireless communication network. This modification helps in completing the handover process quickly.

Claims 9,21 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moreton et al. (hereinafter Moreton) (US 2004/00131128) in view

of Cervello et al. (hereinafter Cervello) (US 2002/0060995) and further in view of Holeman et al. (hereinafter Holeman) (US 2003/0108006).

Regarding claim 9, Moreton in view of Cervello teaches all the particulars of the claim except wherein the decision on a communication connection changeover is made by the subscriber terminal. However, Holeman teaches in an analogous art, a method wherein the decision on a communication connection changeover is made by the subscriber terminal (Paragraph [0045], lines 1-10). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the method wherein the decision on a communication connection changeover is made by the subscriber terminal. This modification reduces the workload of the access point and also the access point need not know all the capabilities of the subscriber terminal.

Claims 11,23 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moreton et al. (hereinafter Moreton) (US 2004/00131128) in view of Cervello et al. (hereinafter Cervello) (US 2002/0060995) and further in view of Auckland et al. (hereinafter Auckland) (US 2003/0078037).

Regarding claim 11, Moreton in view of Cervello teaches all the particulars of the 11 except method according to claim 1, on a communication connection changeover of the wherein a result of the decision subscriber terminal is a change of the communication connection from the current access node to a specific frequency band of a neighboring access node which is common to the subscriber terminal and the

neighboring access node to be associated with the subscriber terminal. However, Auckland teaches in an analogous art, method according to claim 1, on a communication connection changeover of the wherein a result of the decision subscriber terminal is a change of the communication connection from the current access node to a specific frequency band of a neighboring access node which is common to the subscriber terminal and the neighboring access node to be associated with the subscriber terminal (Paragraph [0191], lines 1-4, 14-20). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the method according to claim 1, on a communication connection changeover of the wherein a result of the decision subscriber terminal is a change of the communication connection from the current access node to a specific frequency band of a neighboring access node which is common to the subscriber terminal and the neighboring access node to be associated with the subscriber terminal. This modification provides improvement in signal quality.

Regarding claim 12, Moreton in view of Cervello teaches all the particulars of the claim 1. Moreton did not teach specifically wherein communication information transmitted from two or more access nodes in the wireless communication network are processed in said processing step. However, Cervello teaches in analogous art wherein communication information transmitted from two or more access nodes in the wireless communication network are processed in said processing step (Paragraph [0000], lines 6-21). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the method wherein communication information transmitted from two or

more access nodes in the wireless communication network are processed in said processing step. This modification provides reliable communication for a roaming subscriber terminal.

Claims 13-17 and 20 are rejected for the same reasons as set forth in claims 1-5 and 8 respectively.

Claim 18 is rejected for the same reason as set forth in claim 6.

Claim 19,20 are rejected for the same reasons as set forth in claims 7 and 8 respectively.

Claim 21 is rejected for the same reason as set forth in claim 9.

Regarding claim 22, Moreton further teaches a system according to claim 13, wherein the means for deciding on a communication connection changeover are adapted to decide to change the communication connection from the present frequency band to another frequency band which is common to the subscriber terminal and the access node associated with the subscriber terminal (Paragraph [0039]; Abstract).

Claim 23 is rejected for the same reason as set forth in claim 11.

Claims 32-34 are rejected for the same reasons as set forth in claims 1-3 respectively.

Regarding claim 32, Moreton teaches a subscriber terminal according to claim 32, wherein said means for receiving the communication information of the access node are adapted to extract the communication information from a beacon packet broadcasted from the access node (Paragraph [0089], lines 1-2).

Claims 36,37,39-42 are rejected for the same reason as set forth in claims 4,5,7,8,10 and 11 respectively.

Claim 38 is rejected for the same reason as set forth in claim 6.

Claim 44 is rejected for the same reason as set forth in claim 1.

Claim 45 is rejected for the same reason as set forth in claim 32

Regarding claim 46, Moreton further teaches a computer program product according to claim 44, wherein said Computer Program Product comprises a computer-readable medium on which said software code portions are stored (Figure 3).

Regarding claim 47, Moreton further teaches a computer program product according to claim 44, wherein said computer program product is directly loadable into the internal memory of the computer (Figure 3).

Regarding claim 49, Moreton teaches a method usable in a subscriber terminal entity for a decision procedure on of deciding on performing a communication connection changeover of a subscriber terminal ("first channel" and "second channel"; Abstract; Paragraph [0018]) in a wireless communication network wherein said subscriber terminal is comprising at least one access node (AP in Figure 1), able to communicate with an access node in said wireless communication network, said method comprising the steps of (figure 1):

receiving communication information from said at least one access node, said communication information comprising frequency band information indicating at least one frequency band where at least one access node is capable to communicate, by signaling (Abstract, lines 3-7).

Moreton did not teach specifically, a method of processing the transmitted communication information and determining based on the communication information a communication connection capability of at least part of the at least one access node on the basis of the frequency band information; and using the processing result for a decision on a communication connection changeover of the subscriber terminal. However, Cervello teaches in an analogous art, a method of processing the transmitted communication information and determining based on the communication information a communication connection capability of at least part of the at least one access node on the basis of the frequency band information; and using the processing result for a decision on a communication connection changeover of the subscriber terminal (Paragraph [0009], lines 6-21).

Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the a method of processing the transmitted communication information and determining based on the communication information a communication connection capability of at least part of the at least one access node on the basis of the frequency band information; and using the processing result for a decision on a communication connection changeover of the subscriber terminal. This modification improves communication capability of the system.

Regarding claim 50, Moreton teaches the method according to claim 1, wherein the signaling by means of which the communication information is transmitted comprises a transmission of one or more frames (Figure 9).

Claims 24 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moreton et al. (hereinafter Moreton) (US 2004/00131128) in view of Cervello et al. (hereinafter Cervello) (US 2002/0060995) and further in view of Monin et al. (US 2002/0197984).

Regarding claims 24 and 43, Moreton in view of Cervello teaches all the particulars of the claim except, wherein the means for processing the transmitted communication information are adapted to process communication information transmitted from two or more access nodes in the wireless communication network. However, Monin teaches in an analogous art, wherein the means for processing the transmitted communication information are adapted to process communication information transmitted from two or more access nodes in the wireless communication network (Paragraph [0015], lines 12-16). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the method wherein the means for processing the transmitted communication information are adapted to process communication information transmitted from two or more access nodes in the wireless communication network. This modification helps in increase the flexibility of use of access points in a wireless local are network.

Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moreton et al. (hereinafter Moreton) (US 2004/00131128) in view of Cervello et al.

(hereinafter Cervello) (US 2002/0060995) and further in view of Awater et al. (US 2001/0010689).

Regarding claim 51, Moreton in view of Cervello teaches all the particulars of the claim except, wherein the signaling by means of which the communication information is transmitted comprises a Probe Request/Probe Response. However, Awater teaches in an analogous art, wherein the signaling by means of which the communication information is transmitted comprises a Probe Request/Probe Response (Paragraph [0007]). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the method wherein the signaling by means of which the communication information is transmitted comprises a Probe Request/Probe Response to obtain information regarding AP's (This is a part of IEEE 802.11 standard).

Regarding claim 30, Moreton in view of Cervello teaches all the particulars of the claim except the access node according to claim 25 wherein said communication information further comprises coverage indicator related to frequency bands of neighboring access nodes of the access frequency band node in the wireless communication network. However, Awater teaches in an analogous art, wherein said communication information further comprises coverage indicator related to frequency bands of neighboring access nodes of the access frequency band node in the wireless communication network (Paragraph [0007]). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the access node wherein said communication information further comprises coverage indicator related to frequency bands of neighboring access nodes of the access frequency band node in the wireless

communication network. This modification provides reliable communication for a roaming subscriber.

Regarding claim 39, Moreton in view of Cervello teaches all the poarticulars of the claim except the access node according to claim 32, wherein said indicator for indicating the frequency channel used by the access node at the respective frequency band. However, Awater teaches in an analogous art, wherein said indicator for indicating the frequency channel used by the access node at the respective frequency band (Paragraph [0007]). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the access node, wherein said indicator for indicating the frequency channel used by the access node at the respective frequency band. This modification provides reliable communication for a roaming subscriber.

Claims 52,55,58 and 61 are rejected for the same reasons as set forth in claim 4.

Claims 53 and 56 are rejected for the same reason as set forth in claim 50.

Claims 54,57,59 and 60 are rejected for the same reason set forth in claims 51.

Claims 62 and 63 are rejected for the same reasons as set forth in claims 46 and 47 respectively.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of

an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 25 is rejected under 35 U.S.C. 102(e) as being anticipated by Moreton et al. (hereinafter Moreton) (US 2004/00131128).

Regarding claim 25, Moreton teaches an access node for a wireless communication network said access node comprising: means for detecting and transmitting communication information to said subscriber terminal, said communication information comprising frequency band information indicating at least one frequency band where at least one access node is means for detecting and capable to communicate, wherein said means for detecting and transmitting the communication information are adapted to incorporate the communication information in a signaling to said subscriber terminal (Paragraph [0014]; Paragraph [0006], line 4).

Claims 26-29 are rejected for the same reasons as set forth in claims 2-5 respectively.

Regarding claim 48, Morten teaches a method usable in an access node entity for a decision procedure on performing a communication connection changeover of a subscriber terminal in a wireless communication network comprising at least one access node, wherein said subscriber terminal is able to communicate with an access node in said wireless communication network (Figure 1), said method comprising the steps of: detecting communication information from said at least one access node, said communication information comprising frequency band information indicating at least one frequency band where said at least one access node is capable to communicate

(Abstract, lines 3-7), transmitting said communication information from said at least one access node to said subscriber terminal by signaling (Paragraphs [0089-0090]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Muthuswamy G. Manoharan whose telephone number is 571-272-5515. The examiner can normally be reached on 7:30AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on 571-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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